SLOVENSKI STANDARD

SIST EN 1337-8:2008

01-februar-2008

Konstrukcijska leģiģļ a - 8. del: Vodila za leģiģļ a in pritrjene konstrukcije

Structural bearings - Guide Bearings and Restraint Bearings

Lager im Bauwesen - Teil 8: Führungslager und Festhaltekonstruktionen

Appareils d'appui structuraux - Partie 8 : Appareils d'appui guidés et appareils d'appui bloqués

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EUROPEAN STANDARD

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English Version

Structural bearings - Part 8: Guide Bearings and Restraint Bearings

Appareils d'appui structuraux - Partie 8 : Appareils d'appui guidés et appareils d'appui bloqués

Lager im Bauwesen - Teil 8: Führungslager und Festhaltekonstruktionen

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Foreword

This document (EN 1337-8:2007) has been prepared by Technical Committee CEN/TC 167 “Structural bearings”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2008, and conflicting national standards shall be withdrawn at the latest by July 2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

For relationship with EC Directive(s), see informative Annex ZA, which is an integral part of this document.

This document was prepared by Working Group 1 and Working Group 3 of CEN TC 167 "Structural Bearings".

This European Standard EN 1337 consists of the following 11 parts:

- Part 1 – General design rules
- Part 2 – Sliding elements
- Part 3 – Elastomeric bearings

- Part 4 – Roller bearings
- Part 5 – Pot bearings
- Part 6 – Rocker bearings
- Part 7 – Spherical and cylindrical PTFE bearings
- Part 8 – Guide bearings and Restraint bearings
- Part 9 – Protection
- Part 10 – Inspection and maintenance
- Part 11 – Transport, storage and installation

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This Part of this European Standard deals with the requirements for the design and manufacture of Guide Bearings and Restraint Bearings.

Guide Bearings and Restraint Bearings are not intended to transmit vertical loads but they may be combined in one unit with bearings in accordance. EN 1337-1:2000, Table 1.

NOTE 1 Guide Bearings and Restraint Bearings are shown in EN 1337-1:2000, Table 1, No. 8.1 and 8.2. For combined bearings see EN 1337-1:2000, Table 1, bearing Nos. 1.2, 1.3, 1.6, 1.7, 1.8., 3.1, 4.1, 4.2, 4.3, 7.1, 7.3, and 7.4 with restraints and Nos. 1.5, 1.7, 2.2, 3.3, 3.4, 5.2, 6.2 and 7.3 with guides.

NOTE 2 Examples of combined bearings are given in Annex B.

The minimum operating temperature depends on the materials' properties used at the required temperature and the limitations given in the referenced parts of this European Standard.

NOTE 3 In certain circumstances the bearings described in this part of this European Standard may be required to operate in a plane inclined to the horizontal. In such circumstances the terms "vertical" and "horizontal" should be interpreted appropriately.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1337-1:2000, *Structural bearings – Part 1: General design rules*

EN 1337-2:2004, *Structural bearings – Part 2: Sliding elements*

EN 1337-5:2005, *Structural bearings – Part 5: Pot bearings*

EN 1337-9, *Structural bearings – Part 9: Protection*

EN 1990, *Eurocode – Basis of structural design*

EN 10025, Hot rolled products of structural steels

EN 10204, *Metallic products – Types of inspection documents*

EN 10083-3, *Steels for quenching and tempering - Part 3: Technical delivery conditions for alloy steels*

EN 10088-2, *Stainless steels - Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes*

EN 10340, *Steel castings for structural uses*

prEN 1090-2, *Execution of steel structures and aluminium structures - Part 2: Technical requirements for the execution of steel structures*

ISO 898, *Mechanical properties of fasteners made of carbon steel and alloy steel (all parts)*

ISO 1083, *Spheroidal graphite cast irons — Classification*

ISO 3755, *Cast carbon steels for general engineering purposes*

ISO 4587, *Adhesives - Determination of tensile lap-shear strength or rigid-to-rigid bonded assemblies*

3 Terms, Definitions, Symbols and Abbreviations

3.1 Terms and definitions

For the purpose of this European Standard the following terms and definitions apply.

3.1.1
anchor plate
optional plate that is positioned between the bearing plate and the main structure, normally permanently attached to the latter; provided to allow easy replacement of the bearing

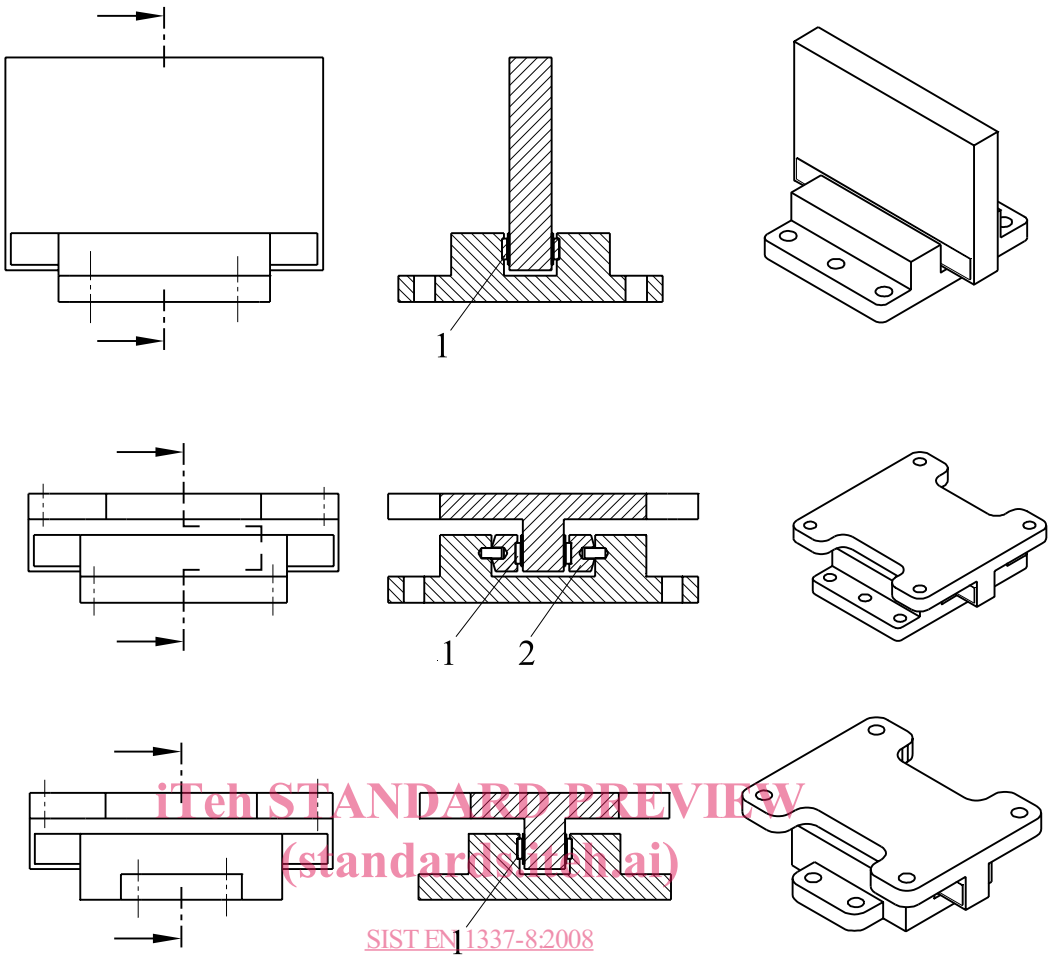
3.1.2
bearing plate
plate that is an integral part of the bearing and forms the main support to which restraints and guides are attached

3.1.3
packing plate
optional plate placed between the bearing plate and the anchor plate for adjusting the overall height of the bearing

3.1.4
sliding element
combination of appropriate materials with flat or curved surfaces in accordance with EN 1337-2

3.1.5
rotational element
element that transmits the specified forces and permits rotations about at least one axis

3.1.6
guide bearing
bearing that provides restraint in one horizontal direction only, accommodates rotations and does not transmit vertical loads (see EN 1337-1:2000, Table 1, No. 8.2).



Key

1 indicates sliding elements

2 indicates rotation elemet

Figure 1 — Examples of guide bearings

3.1.7
restraint bearing
bearing that prevents movements in the horizontal plane, accommodates rotations and does not transmit vertical loads (see EN 1337-1:2000, Table 1, No. 8.1)

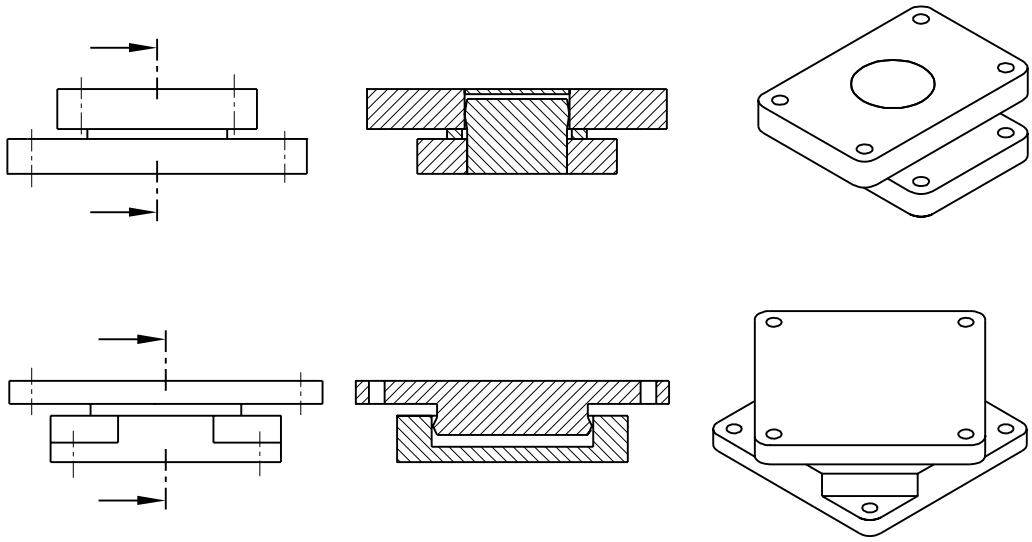


Figure 2 — Examples for restraint bearings

3.2 Symbols and Abbreviations

a is the minor side of an anchor plate or a bearing plate, or

is the smallest dimension of PTFE (see 6.5 and 7.1) ..... mm

b is the major side of an anchor plate or a bearing plate ..... mm

CM Composite Material

PTFE Polytetrafluoroethylene

4 Functional Requirements

4.1 General

Guide bearings and restraint bearings shall be designed to:

— transmit horizontal forces;

— allow vertical movements;

— allow movements in one or no horizontal directions;

— allow rotations;

— generate low resistance to movement;

— have durability appropriate to their intended use.

NOTE As a consequence of the above these devices do not transmit applied vertical loads and bending moments.

4.2 Durability

To achieve durability with respect to repeated loading, low and high temperature, corrosion and ozone or chemical substances all requirements of this standard shall be met.

5 Material Properties

5.1 General

The materials shall be selected for their compatibility within the expected temperature range of the structure.

5.2 Ferrous materials

Guide Bearings and Restraint Bearings shall be manufactured from steels in accordance with one of the following standards: EN 10025, EN 10083-3, EN 10088-2, EN 10340, ISO 3755 and ISO 1083.

5.3 Structural Fasteners

Data in specifications and certification of material shall correspond to the requirements relating to stress.

All materials used shall comply with ISO 898.

5.4 Welding

Welding materials shall comply with prEN 1090-2.

5.5 Anchors

Steel for shear studs shall have a guaranteed yield stress of not less than 340 N/mm^2.

Dowels and shear bars shall meet the requirements of sub-clause 5.2 and shall be fixed by welding or by bolts.

6 Design Rules

6.1 General

The design values of the effects (forces, deformations, movements) from the actions at the supports of the structure shall be calculated from the relevant combination of actions according to EN 1990 and sections from 2 to 6 inclusive of both Parts 1 and 2 of EN 1991.

NOTE 1 Until rules for the combination of actions for bearings become available in EN 1990, the guidance given in EN 1993-2 should be used.

The various elements of guide bearings and restraint bearings shall be designed in accordance with the relevant Eurocodes or the other relevant parts of this European Standard.

NOTE 2 For the design of steel parts see EN 1993.

NOTE 3 For composite material see also EN 1337–2:2004, sub-clause 6.3.

For the design of rotational elements Parts 3, 5 (6.2.3 and 6.2.4), 6 and 7 of this European Standard shall be applied, as appropriate.

Guides shall be designed in accordance with EN 1337-2.